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THE MOUNTAINASH SAWFLY

(*Pristiphora geniculata* (Hartig))

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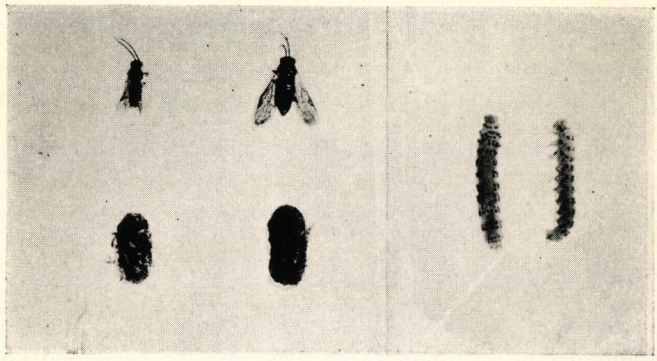

Adult male and female, cocoons, and full grown larvae of the mountainash sawfly. About natural size.

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THE MOUNTAINASH SAWFLY

(*Pristiphora geniculata* (Hartig))

History and Distribution: — The mountainash sawfly was first described from Europe in 1840 by Hartig. Although the first definite record of its occurrence in the United States was in 1926 from specimens collected at Haines Falls, N. Y., there is some difference of opinion among entomologists as to whether it is of European origin.* Larvae of this species were found defoliating mountainash (*Sorbus americana* Marshall) in July 1928 at Shelburne and North Adams, Mass., and in 1929 they were reported plentiful in Delhi, N. Y., and in Castleton, Vt., localities about 125 miles apart. By 1936 it was known to be widely distributed throughout most of New England and New York, and in the northern part of New Jersey. In 1937 Dr. J. J. de Gryse, Chief of the Division of Forest Insects, Department of Agriculture, Canada, reported this species as "common in Quebec, extending west to Ottawa and Brockville and eastward into the Maritime Provinces."

Host Trees: — Field observations indicate that the larvae of this insect will survive only on the foliage of mountainash, either the American species (*Sorbus americana*) or the European species (*S. aucuparia*).

The importance of mountainash fruit as food for game and birds and the esteem in which these trees are held for decorative purposes make insects injuring them more important than the numbers of such trees would otherwise indicate.

Symptoms of Damage: — The larvae are defoliators, and feeding occurs between the first part of June and the middle of August, depending somewhat upon the season and the locality. Larval development in mountainous and colder regions is naturally later than in other localities.

The newly hatched larvae feed between the veins, skeletonizing the leaves, but after a few days they usually eat all the leaf except the mid-rib. They are gregarious and move in small groups, devouring the foliage on one small branch before migrating to another. When abundant they completely defoliate a tree in a few days.

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*When first discovered in the United States, this insect was tentatively named *Pristiphora*, near *banksi* Marlatt, but in December 1935 Dr. H. H. Ross identified it as *Pristiphora geniculata* (Hartig).

Description: — The adults are stout, shiny-black, four-winged flies, from 3/16 to 5/16 of an inch in length. The males are smaller than the females. The antennae are long and slender and the mouth parts and legs pale yellowish with black markings. Some females have the anal segment and under part of abdomen tinged with yellow and brown.

The young larvae are greenish white, with head and legs black and the body marked with black dots. The full-grown larvae are five-eighths to three-fourths inch in length, the head and legs yellow-orange, the eyes black, and the body yellowish with all segments except the last marked with black spots, which are uneven in size and shape. The spots are arranged in more or less irregular longitudinal rows with four rows on each side of the body (two above and two below the line of spiracles), and two broken rows (spots usually absent on dorsum of abdominal segments 2 to 5 inclusive) down the middle of the back.

The cocoons range from one-fourth to three-eighths inch in length, are dark reddish brown and parchmentlike, with an outer covering of coarsely spun silk.

Life History: — The adults emerge during the latter half of May and in June, the dates varying in different localities and with the season. The writer has not observed the laying or hatching of the eggs, and no data concerning the eggs were found in available publications. Newly hatched larvae may be found from early in June to the middle of July, and they reach full growth from early in July to the middle of August. The cocoons are spun in the duff and top soil beneath the trees. The winter is passed as prepupal larvae in the cocoons. Transformation to the pupal and then to the adult stage takes place in the spring. Laboratory records indicate that occasionally there may be a partial second generation late in August and in September.

Means of Spread: — The adults are rather strong fliers and apparently can find their food plants even if the trees are widely scattered and growing as individuals in a mixed forest or as shade and ornamental trees. Since this insect hibernates in the soil it could easily be transported with trees that are being moved for transplanting, if a ball of earth is left about the roots.

Natural Control: — In extensive forests the host trees usually are more or less scattered and often growing in rather inaccessible places. Under such

conditions various natural factors must be relied upon for the control of this insect. Thus far, two species of parasitic two-winged flies of the family Tachinidae have been reared in small numbers from the larvae. Rodents undoubtedly destroy many of the cocoons in some localities, and starvation must occur on many of the overpopulated trees.

Artificial Control: — For the protection of shade and ornamental trees, spraying the foliage in June, or as soon as the small larvae are found, with acid lead arsenate will give effective control. Four pounds of lead arsenate should be used to 100 gallons of water, with fish oil or linseed oil added as an adhesive at the rate of 4 fluid ounces to each pound of the lead arsenate.

If crops are growing or cattle are grazing beneath the trees, a spray, relatively nonpoisonous to warm-blooded animals, consisting of derris or cube powder (containing 4 percent of rotenone) in the proportion of 2 pounds of this insecticide to 100 gallons of water with 1 quart of fish oil added as an adhesive will give good results if applied when the young larvae are first observed. This insecticide, however, loses its toxic properties after about 2 weeks of exposure, and therefore should not be applied until the larvae have begun to feed.